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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/819,861	03/29/2001	Masayuki Negoro	030662-071	3745

7590

04/25/2003

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EXAMINER

SADULA, JENNIFER R

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 04/25/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/819,861

Applicant(s)

NEGORO ET AL.

Examiner

Jennifer R. Sadula

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-- Th MAILING DATE of this communication app ars on the cover sheet with the correspondence addr ss --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/29/01 & 6/1/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 March 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 01 June 2001 has been considered by the examiner. However, the examiner wishes to note that these references merely submitted with English translations of an abstract have only been considered on the merits of that which was in English and no more.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 recites the limitation "the transparent axis" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al., U.S. Patent No. 5,990,997 ("Jones").

Jones teaches a twisted nematic LCD with negative tilted retarders for improved viewing characteristics wherein transparent substrates are located on opposite sides of nematic liquid crystalline layers such that the n_z optical axis or index is not perpendicular to the plane of the layer prior to excitation of the molecules (6:7-48). The liquid crystalline material may have a discotic structural unit and may be polymerized, however the compensator produces from such materials (wherein the surface has been rubbed for alignment purposes) has tilted optical axis T_1 and T_2 . The azimuthal angles of optical axis T_1 and T_2 are defined as the axes project in the plan of the respective films (6:48-7:23). Thus the recitation of variance in tilt angles is satisfied. See also specifically figures 1(a) and 2(b), however the optical axis associated with each retarder extends substantially perpendicular to substantially parallel. With regard to claims 2-3, the plate or support of Mori can be any shape. The rubbing treatment is further disclosed throughout the specification and examples.

Claims 1-7, are rejected under 35 U.S.C. 102(e) as being anticipated by Mori et al., U.S. Patent No. 6,184,957 ("Mori").

Mori teaches a liquid crystal display comprising a pair of transparent substrates wherein the liquid crystal is aligned parallel to a plane of the substrate and an optical compensatory sheet having an optically negative uniaxial property and an optical axis parallel to a plane of the sheet (abstract). The liquid crystal molecules are scarcely tilted to a plane perpendicular to the

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substrate to improve the viewing angle character and may be discotic in nature, although various polymers and liquid crystalline compounds can be employed (10:5-40). Figure 5 shows an example of the relationship of the polarization axis, the axis of the optical compensatory sheet and the rubbing direction of the orientation layer of the cell utilized in IPS mode. The liquid crystal aligns parallel to a plane of the substrate and varies its direction of molecular major axis on a plane parallel to the plane of the substrate under variation of voltage- thus the variance is from parallel to perpendicular thereby satisfying the range of 50-90 degrees of claim 1 (5:3-14).

With regard to claims 2-3, the plate or support of Mori can be any shape. The rubbing treatment is further disclosed in column 12, lines 15-26.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori or alternatively Jones, either in view of Aminaka et al., U.S. Patent No. 6,081,312 ("Aminaka").

Mori teaches a liquid crystal display comprising a pair of transparent substrates wherein the liquid crystal is aligned parallel to a plane of the substrate and an optical compensatory sheet having an optically negative uniaxial property and an optical axis parallel to a plane of the sheet (abstract). The liquid crystal molecules are scarcely tilted to a plane perpendicular to the

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substrate to improve the viewing angle character and may be discotic in nature, although various polymers and liquid crystalline compounds can be employed (10:5-40).

Jones teaches a twisted nematic LCD with negative tilted retarders for improved viewing characteristics wherein transparent substrates are located on opposite sides of nematic liquid crystalline layers such that the n_z optical axis or index is not perpendicular to the plane of the layer prior to excitation of the molecules (6:7-48). The liquid crystalline material may have a discotic structural unit and may be polymerized.

Neither Jones nor Mori teaches the specific discotic liquid crystalline materials or the coating materials utilized with such.

Aminaka teaches a homeotropic liquid crystal cell with one or more compensatory plates maintaining small birefringence. The orientation layer is a coating solution wherein in column 19 formulas I and II of applicants claim 8 are disclosed. Such an orientation material is later subjected to rubbing alignment. The alignment of the materials is fixed by polymerization.

It would have been obvious to one of ordinary skill in the art at the time of invention to make either device of Mori or Jones with the alignment coating solution of Aminaka as Mori and Jones disclose the need for the usage of well known methods for alignment of polymerizable discotic LC materials with rubbing treatments and Aminaka teaches that such a solution is superior for alignment when used in conjunction with rubbing treatment.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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VanderPloeg et al teaches a twisted nematic liquid crystalline device with negative tilted retarders on one side of the LC cell. The Jones patent cited above is a divisional off of this patent.

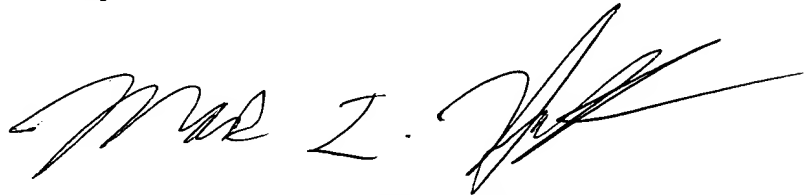
Aminaka '457 teaches an ellipsoidal polarizing plate having an optically anisotropic layered transparent substrate and polarizing membrane.

Yokoyama et al teaches an optical compensatory sheet and LCD disclosing examples of discotic cores.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer R. Sadula whose telephone number is 703.305.4835. The examiner can normally be reached on Monday through Friday, 10am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff can be reached on 703.308.2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.



MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

JRS
April 21, 2003